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# (12) United States Patent Keller

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#### (54) FILTER SYSTEM FOR A FLUID

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#### (56) References Cited

#### U.S. PATENT DOCUMENTS

5,571,408	A *	11/1996	Rising	B01D 29/2
				210/167.2
5,626,747	A	5/1997	Ritzow et al.	
6,056,886	A	5/2000	Hickok, Jr. et al.	
6,770,194	B1	8/2004	McGrath	
7,618,534	B2	11/2009	Mihlbauer et al.	

8,034,237 B2 8,132,534 B2		Happel et al. Arita et al.
2004/0094470 A1		Jackson A01K 63/045
2007/0170104 A1	* 7/2007	Belford B01D 29/117
2009/0250121 A1	10/2009	

<sup>\*</sup> cited by examiner

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#### (57) ABSTRACT

A filter system for filtering a fluid is disclosed which includes a sock tank fluidly connected to a baffle tank. The sock tank contains a sock filter for separating particles of a certain size from an unclean fluid. The unclean fluid can come from a container holding a large quantity of fluid, such as an aguarium. The filtered fluid from the sock tank is then routed into the baffle tank. The baffle tank has a first chamber in fluid communication with a second chamber. The first chamber contains a bacteria culture for biological filtration of the incoming fluid. First and second baffles are positioned within the first and second chambers and function to regular the flow of filtered fluid from the first chamber to the second chamber. The first and second baffles also control the fluid level in the first chamber so that the bacteria culture is fully immersed in fluid at all times. This is needed so that the bacteria culture can function properly. The filter system further includes a return conduit for routing filtered fluid from the second chamber of the baffle tank back into the container holding a large quantity of fluid.

#### 20 Claims, 4 Drawing Sheets

